System and Method for
Solving a Large System of D nse Lin ar Equations

ABSTRACT

A method and system for solving a large system of dense linear equations using a system having a processing unit and one or more secondary processing units that can access a common memory for sharing data. A set of coefficients corresponding to a system of linear equations is received, and the coefficients, after being placed in matrix form, are divided into blocks and loaded into the common memory. Each of the processors is programmed to perform matrix operations on individual blocks to solve the linear equations. A table containing a list of the matrix operations is created in the common memory to keep track of the operations that have been performed and the operations that are still pending. SPUs determine whether tasks are pending, access the coefficients by accessing the common memory, perform the required, and store the result back in the common memory for the result to be accessible by the PU and the other SPUs.